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## LOSERS.

WHETHER life be a game of skill, as the winners generally infer, or of chance, as the losers uniformly assert, it is evidently one in which no man gains always, whatever industry, forethought, or caution he may bring to the attempt; while, without these adjuncts, losing appears to be certain in spite of the fairest opportunities. Those lucky cards of the world are indeed strangely dealt, with no reference, it would often seem, to desert or abilities. Every man, it has been said, gets hold of some of them at one period or other in his time; and but small research among the waymarks of common life will suggest that their distribution is by no means so unequal as one might imagine on first view. The winners in every case secure the largest share of attention, and certainly present the most agreeable subject for remark; but the qualifications for losing are in some individuals so prominent, and in society at large so various, that they may well be noted among the curiosities of character.

The beaten ways to loss of worldly goods and advantages—intemperance, gambling, living above the means, and so forth—are too direct, and unfortunately too common, to merit special notice; but some men have facilities for getting rid of anything like property, which, compared with these everyday methods, seem the very effects of genius. The best or the worst of such people's history (one knows not which to consider it) is, that their efforts in the losing line are never accompanied by that degree of selfish gratification which at once attends and tempts the ordinary spend-thrift. They are generally hard-workers and spare livers, taking little enjoyment out of the funds they dispense, and allowing still less to those in their immediate vicinity. I once knew a man of this order in a small country town. Mr Slater had a small family, and inherited what his neighbours regarded as a respectable share of house and landed property; his personal expenditure was strictly economical; his helpmate was a proverb for uncompromising carefulness; and their domestic arrangements leaned rather to the stingy side. Yet Mr Slater's income diminished with a celerity which the most determined aspirant to high life could not surpass. The man had a taste for improvement, but it was peculiarly his own; and not only all his time, but all the funds he could command, were put in requisition to keep carpenters, masons, and others of the constructive kind in employment on some portion of his premises. Slater's repairs were always ruinous. He had a special gift for making things unsightly, and could turn either house or garden into a specimen of the waste-and-howling-wilderness variety

on the shortest notice. Besides, his great designs were never completed—time, money, or patience generally failing about midway, when the work was abruptly concluded by the roughest of all patching, which, after a season's complaint and nuisance, once more gave employment to the mechanics of the neighbourhood. By these means, and an immovable attachment to high rents, Slater contrived to reduce the returns of his property every year—the natural consequences of bad tenants. Litigations and disputes with the lord of the soil also came in due course, till part of his holdings were leaguered by the law, and the rest utterly uninhabitable; while his right in the whole was purchased by a stranger at a miserably low price, which the necessity of his latter days obliged him to accept. His neglected and pinched-up family sank and settled, as might be expected, far below the condition of their birth; and business having retired from Slater, the old man spent his ill-provided leisure in warning all who would listen against repairs of any kind, with literal quotations of the sums he had lost in improvements.

There is another class of losers from whom property passes away like the waters from certain lakes, without any visible outlet—close-handed people who live in the faith and practice of save-all, and will not part with a farthing easily. They are generally inheritors, though often heirless themselves, and by what chance they escape riches is the natural wonder of their neighbours. Most of them enjoy a reputation for wealth at some time in their lives; but just when gayer or more needy relations begin to calculate with certainty on their testaments, the long-practised economy is found to be a financial requisition, and tales of usurious but ill-secured loans, great and bad bargains, or neglected interests, come out, though they never half explain to the many disappointed why the childless uncle or bachelor cousin is, after all his saving, so little to be reckoned on. It is curious to remark what an amount of penny wisdom inveterate losers often possess. Small expense is generally a terror to them, and they occasionally make shifts to avoid it which might edify real penury; but Franklin's celebrated maxim, 'Take care of your pence, and your pounds will take care of themselves,' is rendered null and void in their case—the pence being usually saved at the expense of the pounds. No risk is too great to run if a comparatively trifling economy appear on the foreground; and the miser who triumphantly boiled his gruel in the silver tea-urn his aunt bequeathed him, rather than purchase a cheaper and more suitable utensil, though perhaps a proverbial myth, has many a humble imitator of his policy. A different but congenial order of

minds are those whose hopes go out so desperately after gain, that any promise, provided its tone be high enough, is sufficient to make them peril their whole stock or provision. Quack schemes for fortune-making owe their existence to such men, and the advertisements one meets with in metropolitan papers proclaiming thousands to be had for the gathering by one project or other, evince that they are not supposed to be extremely rare. This belief in spontaneous profit is not restricted to any limit of fortune or division of rank. The scion of nobility and the artisan's widow are alike to be found among the shareholders of self-enriching banks and companies expressly constituted for gold-gathering in Britain; but they are seldom individuals engaged in active business, and few of the bold adventurers have ever scraped together with their own hands the funds they embark so fearlessly. The professional alchemists who almost monopolised the quackery of Europe till far on in the eighteenth century, appear to have been peculiarly fitted for attracting and profiting by such trusting souls. An offer to transmute all the pots, tinware, and old iron about his house into virgin gold—how it must have captivated a worthy of the kind in times when the state of popular education still permitted a belief in the philosopher's stone! The story of those ages abounds with instances of losing in that fashion, and the loss was generally wholesale. 'I will buy the lead of all the churches in London and have it transmuted,' says the dupe in Ben Jonson's play, out of the fulness of his expectation; and a Polish nobleman actually carried that design into execution, by expending on the dull metal his entire fortune, or rather the remnant left from supplying the scientific demands of a sage who, after labouring with furnace and crucible for eighteen months in a certain apartment of his castle, which no uninvited foot might enter, was at length missing one day, leaving the count with his mansion and offices literally full of lead.

Less credulous and far more energetic spirits also swell the ranks of the losers: men of great business and bustle, who hurry through work and life as if in pursuit of Fortune's wheel, and clutch with eager hand at every chance of gain. They are ready-reckoners of probable and present profits, and keen-sighted as regards the nearest advantage; but their vision carries a short distance. In their hasty generalising, particular details are overlooked, and their active and busy days are passed in continuous alternations of hard earning and rapid loss. These men act as channels for their own gatherings, and have an extraordinary knack of multiplying dependents round them; not so much from liberality of disposition, though they are never niggards, as from a perpetual inclination to *do* and *rule*, which is apt to turn the stream of their patronage on the worthless and the indolent. They make, however, most uncertain holds of trust, and probably leave more reduced and helpless families than any members of the losing community. Successful quacks mostly belong to this order, and so do many of those honest and enterprising men who devise new branches of industry, or open unthought-of avenues for trade. Mighty are they in expedients, and of all but exhaustless energy; yet the least clever of their generation at times get and keep the start of them in life, and their superannuated days, should they ever come to such, are too often poverty-stricken and comfortless, except through the recollection of great and working times, concerning which their memory is apt to be amazingly perceptive. I remember an old man in my native village, who lightened the burden of age, infirmity, and misfortune, by tales of the time when he kept two shops, a saw-mill, a stage-coach, and a tavern, in one of the western townships of the United States. He had emigrated early and poor, made earnest efforts to better his fortunes, and succeeded to the extent so faithfully chronicled in his many narrations. How the two shops, &c., melted

away and left no trace in his finances was never satisfactorily explained; but he had returned, increased in years, though not in goods; and many a day when the township of his tavern and shop-keeping exploits had grown to an American city, did he astonish old neighbours with accounts of the unparalleled profits and marvellous exertions he had made within its borders.

Some men seem appointed by nature or destiny money-conductors to certain dispensing hands. They are active and careful gleaners, even where others have reaped, in the fields of fortune, economical in all their thoughts, and unsparingly devoted to business. Yet with every qualification for realising wealth, they live in a continual process of losing—the fates having provided a constant drain on their gatherings in the form of a grandeur-loving helpmate, an expensive family, or a race of decidedly ill-doing relatives.

It is sad to look on the profitless toil and unenjoyed savings of such a life; neither the gala days of the spendthrift, the magnifications of the great busy man, nor the miser's reward of mere accumulation, with all its attendant homage from legacy-hunters, are there, and the spenders of that poor earner's gains may miss, but they seldom mourn him. One meets with another order of very provident losers in almost every society, for its members are widely scattered. People who toil, and spare, and lay up through prudent industrious years, till some speculation which glitters with honour as well as profit in their eyes charms the well-reckoned hoard out of strong-box and bank, never to be gathered back again. These lures to misfortune come in different shapes to our worldly-wise men, but always spiced with something of the pride or vanity of life. Sometimes they appear in the building form, sometimes they tempt to untried branches of trade, and very often to an extension of business, with all the pomp and circumstance of commercial increase. Those who thus venture beyond their depth doubtless merit loss, and generally meet with it; yet there is a melancholy lesson in the shipwreck of so much trust and striving. It is not only the fruits of meagre and laborious days, the reward of patient toil, or the purchase of lengthy sacrifice that one regrets to see dwindling away with the unlucky scheme, but the hope and the glory that was in it, the thousand day-dreams that were built on that foundation, and the various efforts of which it was the goal; for in many an instance the fine house or great shop has been the plan and promise of years. The saddest example of losing in this line I ever knew was a member of the gentle craft; in short, a cobbler. The aim and high place of his ambition was a shoe-shop in a back street of the little town in which he had been born. For that he toiled and hoarded from his youth, remained unmarried, kept no holidays, and put in practice such expedients to keep and gather money that his neighbours set him down for a miser. It is marvellous what mere determination can accomplish in the way of saving out of almost any income. The cobbler persevered in his plan through many a vicissitude of health and trade, keeping the outlay far below the earning, till, at the close of almost twenty years, he found himself in possession of the sum long resolved upon as a capital sufficient to establish the shoe-shop. His fancy had chalked out its arrangements years before, and intimates had grown familiar, through his confidential details, with the sign-board, the windows, and the back-parlour, with a glass-door, wherein he was to entertain his most deserving customers. They were all completed, to the serious diminution of his capital—for the cobbler's memory could spare no jot or tittle of that cherished design—and the back street talked of nothing else for a fortnight; yet, whether his selection of goods was injudicious; whether the surrounding tradesmen thought it incumbent on them to put down the *parvenu*; or whether his pride in the great Babylon went beyond his neigh-

hours' toleration, I could never ascertain; but custom would not come. All the commercial manoeuvres within his knowledge were tried in vain; low prices and liberal credit were the only methods by which he could succeed in creating a sale, and these ruined the cobbler. He had laid up too much of the trust and store of life in that scheme to have any chance of recovering from its disappointment. The man's mind seemed to fail with his shop, for he utterly mismanaged its closing affairs; and when the Insolvency Court had discharged him, and the premises were occupied by a grocer, who, I am told, daily praised their convenience, and grew actually rich there, he could return no more to his old working ways, but spent his time lingering about the door in a state of melancholy stupor, which deepened into broken health; and he died, they said, with a low lament for the shoe-shop!

Two fertile sources of loss among the more intelligent classes are civil lawsuits and impracticable projects in mechanism. Difficult of explanation as the fact appears, no losses are more readily referred to at home with greater equanimity than what are incurred through these methods. The sufferers in general seem to survey the havoc made in their finances with a mournful complacency resembling that of a veteran looking on his scars. It may be that the idea of having sought justice, however vainly, which most losers by law entertain, gives a salt and a savour to their losses; while the projectors who would have served science, and through it the world, but for some cross accident, besides being sure of eventual success, honour, and riches, had they only some additional thousands to spend, gain from theirs a noble opportunity to rail at the generation which would neither appreciate nor encourage the great design.

I had two old neighbours long ago in a little country town, who turned their respective failures to the very best account by making out of them an interest and an occupation for their declining days. One of them had been the chief of a prosperous business which his father established and bequeathed to him. He was a steady, quiet, obstinate man, who might have plodded to his grave in the track on which Providence had set him, and left the concern much as he found it to his heirs, had not a pugnacious brother-in-law quarrelled with him about a small bill, and dragged him into law. The case of *Struthers versus MacLoskie* is doubtless yet familiar to some of those professional persons who had to do with it during the many years of its progress through the courts. Which of the brothers-in-law eventually won, my memory cannot certify; but I know that the one died a bankrupt, and the other lived an old man in a small house with his equally aged partner, pinchedly supported by the contributions of a married daughter and two nephews. Nevertheless MacLoskie (for he was the survivor) had reserved to himself a consolation. Enshrined in an old desk, which had once done duty in his counting-house, were sundry bundles bound with red tape, and consisting of all his lawyer's letters, with every scrap of the accounts connected with his lawsuit. This hoard was set up in a secret corner of his habitation; and thither, in the dearth of all amusement or interest, would the poverty-stricken man retire to pore over those endless bills, as the miser does over his more substantial, though not more useful, treasures. One can imagine the proud glow with which the old man would re-peruse these proofs of a past importance, reflecting that it was about *him*, veritably about himself, humble as he was, that so much had been written.

My other neighbour had inherited a small but respectable fortune, which might have enabled him to live in secure comfort, or make a promising start in business; but the man had a perilous turn for mechanics, and after the usual exercises with clocks and turning-lathes, it prompted him to imagine one of those

self-moving machines—the dream of all mechanical speculators since the dawn of useful art. It was to dispense alike with water, air, and steam, and save labour in every direction from the plough to the piano-forte. On it the inventor laboured and spent till his money was gone and his hair had turned gray. It might be that repeated disappointments stimulated the latter process, for often had the machine fulfilled his highest expectations in private, but failed on a public trial. On one occasion I believe the model actually moved some twenty feet, and then stood still, to the great chagrin of several country gentlemen, who had been induced to patronise the undertaking. That was the last opportunity granted to his genius, and when I knew the man he taught a very little school; but the thought, the time, and the money expended on that engine formed the Talmud of his life, which he mused, enlarged, and commented on with the zeal and relish of the elder rabbins. In the early stages of their acquaintance, MacLeod (for so they called the schoolmaster) and MacLoskie had many a skirmish touching the greatness of their respective losses; but peace was at length established between them, on the tacit understanding that each should hear the other's tradition to an end; and as MacLeod's conclusion was always the signal for MacLoskie to begin, their meetings were a terror to the neighbourhood. The old men are long gone, and I have lived to learn, as most people may, that life has other gains and losses than those of worldly or even visible things; yet as failures in such matters are more obvious, and therefore more easily discussed, they seem the natural subject of a spare hour's *Essay on Losers*, by

ONE WHO HAS NOTHING TO LOSE.

#### A PEEP INTO THE OBSERVATORY.

PROFESSOR BOND'S CLOCK FOR REGISTERING ASTRONOMICAL OBSERVATIONS BY ELECTRICITY.

THE great globe on which we dwell spins round in space with an even movement from day to day and year to year. It has not made any important change, either in the direction of its revolution or in the rate with which it goes, since the dawn of human history. Out of this unvarying uniformity the most exact of all the sciences springs. For man, having learned to trust to its enduring steadiness, plants his telescope firmly upon the revolving surface, and looks out through its tube as it sweeps along in its circular course. Again and again he sees the same star returning across the visual area of his instrument. He fixes a delicate thread in the centre of this, and counts the minutes and seconds that intervene between the periods when the star appears to make its recurring contacts with the thread. If those intervals are always of equal amount, he calls the star a fixed one; but if they are of varying length, he notes the difference as the measure of the wanderings of the star; and the telescope thenceforth becomes the observatory of an astronomer.

The great object of astronomical observation is the exact determination of the times when certain important luminaries pass behind threads placed within the tubes of fixed telescopes. From multiplied observations of this nature a knowledge of the planetary and stellar systems is deduced. But in order that the deductions may be sound, it is necessary that even seconds shall be split into fractions. The observer must be able to say, not only in what second, but also in what part of a second, the star has been observed behind his thread. Both his eye and his ear must be trained by long custom to a state of exalted activity.

The threads within the visual field of his instrument must also be of the utmost degrees of fineness; for fifteen spider-threads, held three feet and a half away from the eye, will cover the breadth which a star seems to move through in a second. Dr Wollaston has succeeded in drawing out platinum wire for the use of astronomers to such extreme tenuity, that 150 of them may be twisted together to make up the thickness of a silkworm's fibre; and yet one of these will suffice to cover the point of a star when placed behind it under favourable circumstances. But the better to understand how it is that such gossamer material can be employed in the solid work of the observatory, let us enter for a little while into the interior of one of those interesting temples of science during the performance of its ordinary rites.

It is night, and the fixed transit telescope is just about to sweep over the star Arcturus. Through a slit, which rises in the opposite wall high into the roof of the room, we perceive a galaxy of twinkling stars. As our eyes grow accustomed to the dimness of the light which alone is allowed to pervade the space in which we stand, we notice before us a grave-looking telescope, supported by means of a firm, transverse axis upon two solid piers of stone, and pointing up towards the higher portion of the slit. An observer in a loose coat and close cap has already taken his place in a comfortable reclining-chair, which enables him, without fatiguing effort, to keep his eye before the end of the telescope. He holds his tablets and pencil in his hand, and a large clock—the living genius of the place—is audibly ticking near. The beats of this clock the observer is mentally counting. Before he placed himself in his chair he took the second from the clock face—that is, he began his enumeration by noting the number of seconds that had already elapsed in the current minute. His ear is now strained to catch with precision each succeeding beat, and his eye is strung to concentrate its attention upon the star as soon as it impinges upon his sight. The earth moves on with its almost imperceptible and stately pace, and carries the telescope and observer with it, until at last the expected object is found within the range of the tube, and the advancing star appears at the margin of the visual field.

The circular space in which the star is seen is illuminated by a subdued tinge of artificial light thrown in from a lantern at the side of the telescope. By means of this light fine upright threads are discerned crossing the illuminated field at equal distances. Towards the first of these the star advances with a twinkling gait, but with its whitish hue, nevertheless, distinct on account of being contrasted with the yellower field. Onwards it moves; the observer following it carefully with his eye, and counting the clock-beats as they fall. 'Thirty-two' was the last reckoning: 'thirty-three' follows as the next. Then for an instant the star disappears behind the thread—appears again, and beat 'thirty-four' is heard. The observation has taken place not half-way between the beats, but nearer to the following than the preceding one in the proportion of four to six: 33.6 seconds is therefore jotted down upon the ready tablets as the period of the occurrence. By the time the record has been made the star has approached the second thread. The observer is therefore again on the alert, and counting the clock-beats that he may register the transit behind it. This process he repeats afterwards with the three remaining threads. The five recorded numbers are then added together; the sum-total divided by five; and the result, with the hour and minute taken from the clock-face inserted before it, is registered as the exact time at which the star passed the central wire.

The five threads are used, and five observations taken, simply that any error incident to the process of observation may be diffused among the five. If the

observer has estimated and jotted down the fractional second of one observation a little too soon, the chances are that the error will lie in the other direction with the next; and the one inaccuracy will thus tend to correct and neutralise the other. By this contrivance the process of observing has been brought to so great a nicety that even personal errors are taken into account. The eye of one man sees quicker than that of another. The peculiar power of the observer's organ is therefore tested by comparative experiment, and a refined correction in accordance with this is made in the record of the observation.

Notwithstanding all that has been thus done to perfect the process of observing, the astronomer still continues to find cause for dissatisfaction. It is not enough that he has made his instruments analyse and define their own faults of construction; it is not enough that he has fitted them with optical powers that magnify hairbreadths of space into vast areas; it is not enough that he has split the errors incident to his own inexperience into fragments by causing them to divide themselves; it is not enough that he has entered into successful competition with spiders in forming fine threads for the visual fields of his instruments; it is not enough that he has made his own rate of perception to enter as an element into his estimate;—for there yet remains the important fact, that the eye and the ear are not themselves in perfect accordance with each other. When the eye notes an occurrence, and marks it as simultaneous with a sound that is recognised by the ear, the two perceptions are caused by phenomena that are perhaps some fraction of a moment asunder from each other in time. The message that comes through the ear takes longer to pass into the seat of perception than that which enters by the eye. Every observation therefore includes a residuary error dependent upon this source, which is sufficient to distort, to a certain extent, the symmetry of the deduced results, making cycles to seem longer or shorter, and causing suns to give in an erroneous account of themselves.

The Americans have taken the initiative in attacking this source of inaccuracy: they have invented a plan for making electricity register upon paper instantaneously both the clock-beats and the exact time of observation. The observer makes the record of the latter by merely pressing an ivory key which he holds in his hand. This gives a more exact result, because the consent between the eye and the sense of touch is much more intimate than that between the eye and ear. When the eye is engaged in observing, the hand can obey almost instinctively a suggestion coming through it, and indelibly register the instant by a grasp; for this is a form of obedience that it is practising all life-long. The hand becomes wonderfully skilled from habit in effecting rapidly the purpose that has been willed under the influence of the quick sense of sight; whereas the mental comparison of a sound with a visible sign involves the necessity of a far slower and less familiar process. It is this principle that constitutes the value of the American contrivance. Professor Bond, of Harvard University, United States, is the inventor of the instrument by which the electrical register is proposed to be made; and this was exhibited in operation at one of the sectional meetings of the British Association, at Ipswich, on the Thursday morning during the visit of Prince Albert.

In one corner of the council-chamber of the town-hall, in which the meeting was held, stood a small square frame of mahogany, supporting a cylinder covered with paper. This cylinder was kept revolving by means of a weight-and-clock movement, so that it completed each revolution in a minute. Upon its top the point of a glass-pen rested, whose interior cavity was filled with ink, so that, as the cylinder turned beneath it, a continuous trace appeared upon the paper, which was lengthened out into a spiral line by a slow

shifting of the cylinder sideways. Upon any given portion of the paper this ink-trace appeared, after the cylinder had made a few turns, in parallel columns somewhat thus—

Behind the frame containing the revolving cylinder peered forth the face of an astronomical clock. From this connecting wires might be seen passing backwards into a cupboard containing a charged galvanic battery, and forwards to the registering cylinder. The steady click, click of the clock was telling off the seconds in the usual way; and so long as no electrical communication was established between it and the registering apparatus, the cylinder continued to move on with stolid indifference, covering itself with parallel columns of even lines; but as soon as the clock and the cylinder were brought into electrical relation by an altered arrangement of the wires, the aspect of affairs was strangely changed. The pen, before so quiet and sedate, became all at once convulsed with a paroxysm of twitches, which of course registered themselves upon the paper of the cylinder; so that the parallel columns produced by a few successive turns of the apparatus now presented this appearance—

Each little offset in each column had been made simultaneously with a beat of the clock, and was in fact the permanent record of a corresponding second. The eye and ear could easily trace the connection while the operation was in progress. Each twitch of the pen was evidently instantaneous with a sonorous beat of the pendulum: some mysterious sympathy connected together the movement and the sound.

The secret of the sympathetic connection was simply this: the pen was fixed to an armature of steel, placed close to the extremities of a horse-shoe of soft iron. This horse-shoe was surrounded by a coil of the connecting wires. Whenever a current of galvanic electricity was passed along the coil, the horse-shoe iron became a magnet, and attracted the pen and armature into close contact with itself. Whenever the galvanic current was interrupted, the magnet lost its power, and allowed the armature and pen to spring away for a short distance under the influence of an elastic force. Each springing away of the pen registered itself by an offset upon the paper. Whenever the pen was held in close contact with the magnet, the even line was traced. The clock itself was placed in the line of connecting wires, so that each time the pendulum swayed from side to side it broke the contact of the conducting line, and thus arrested the passage of the electric current for an instant: and thus each effect formed by the pen, when the horse-shoe ceased to be a magnet, came to be simultaneous with the beat of the clock which arrested the galvanic current that sustained the magnetic power.

When an observation is to be recorded by the aid of this instrument, the observer takes a small key of ivory, attached to the end of a wire in his hand. He places the clock and registering-cylinder in communication, and then fixes himself at the telescope. Concentrating his attention upon the star, he gives a momentary pressure to the key, when the luminous point disappears behind the thread: by so doing he breaks the galvanic circuit for an instant, and this break is registered among the clock-breaks. An additional offset is interpolated among the ordinary second offsets, and the result appears somewhat thus—

The observation is here recorded as having been made at thirty-three seconds and six-tenths. The fractional part of the second line at which the interpolated offset is found is measured off as the exact estimate of nine.

In the old mode of observing by the ear, the fine threads of the telescope were necessarily placed so far asunder that the observer had

time to record the passage of the star behind one, and prepare himself for its contact with the second, before that occurrence could take place. But in observing by the aid of Professor Bond's apparatus, the wires may be so close that the successive star-contacts may be made almost in consecutive seconds, for the hand will be ready to register them as quickly as they can happen. In this way a considerable saving of time will be effected in making each observation—an important piece of economy when many are to be taken in the course of a day.

It has been proposed that this instrument shall be made a means of ascertaining the rate with which the electric current travels. Suppose, for instance, the case of a break-circuit clock working at London, and registering its time simultaneously upon two cylinders at once—the one placed close by in London, and the other at the end of a long connecting wire in Liverpool; and let it be assumed that the electric influence that ran along the wire to register the seconds in Liverpool took a quarter of a second to travel to its journey's end; then, although each clock-beat was registered a quarter of a second later in Liverpool than in London, there would be no possible means of ascertaining the fact. But now, again, imagine that in this state of affairs an observation is made in Liverpool of the passage of a star behind the transit-thread of a telescope, and that the observation is registered simultaneously upon both the Liverpool and London cylinders by an offset effected through the instrumentality of a break-circuit wire held in the observer's hand, then the record in London would be made a quarter of a second later than the record in Liverpool, owing to the time taken by the transmission of the recording influence. And when the records upon the two cylinders were placed side by side, and compared together, this would become immediately apparent: in fact, there would be found a difference of half a second between the registers. The effect would have been doubled, for the second was registered in Liverpool a quarter of a second later than the second was in London; and the observation made in Liverpool was registered another quarter of a second later in London than in Liverpool. It was therefore registered later, and, so to speak, by earlier time, so that both the lateness of the register and the earliness of the time became elements in the result. It will be understood that the rate assumed for the velocity of the electric influence is greatly exaggerated for the sake of familiar explanation. It is well known that it would not need anything like a quarter of a second for its transmission from London to Liverpool. But it is anticipated that its velocity is by no means so great but that it may be detected by the break-circuit apparatus when the longest possible circuit of wires has been selected for the performance of the experiment.

The astronomer-royal is contriving a modification of the break-circuit apparatus for the use of the National Observatory. He proposes, for economical reasons, to give the signal by the formation of an electric current instead of by breaking one already established. The record will then appear in interrupted dots instead of in continuous offsets. He also proposes ultimately to make the same clock both drive the cylinder and record the seconds. The cylinder, which is already prepared, is twenty inches long and twelve in diameter, and is to be made to revolve once every two minutes, affording space upon its surface for a six hours' record. For the present, the rotation of this cylinder is to be effected by a separate train of wheel-work, and is to be kept uniform by means of a mercurial pendulum revolving in a circle of 20 degrees diameter instead of oscillating backwards and forwards. The driving power is to be transmitted to this radial arm by a modification of the steam-engine

governor, which will be able to shut off any accidental excess of force that would otherwise disturb the uniformity of the result.

#### THE BUSHRANGERS.

SUCH of our readers as have their superfluous cash invested in the remote colony of New South Wales will have had ample opportunities within the last few years of moralising sadly over the mutability of all things earthly—antipodean or otherwise—in the shape of banks bankrupt, and property that profiteth not. Diverse have been the discussions as to the cause of these reverses among the hardy colonists, by many of whom, especially the squatter portion, the whole was ascribed, and perhaps not unjustly, to the sudden withdrawal of convict labour, thereby depriving them of what they had no means of replacing, and throwing them unexpectedly on their own resources. That convict aid was the chief element in the rapid prosperity of the settlement cannot be denied; yet, as bringing in its train numerous evils, not quite so evident at first as the advantages, it was not surprising that long before penal labour was abandoned there were many persons who felt that the time had come to put the colony fairly on a trial of its merits for a due supply of working *matériel*, and who still feel, that if its capabilities are equal to the representations made of them, there will always be a sufficient inducement for persons to emigrate from the mother country, and thus supply the want complained of.

Perhaps had there been greater circumspection in the arrangement of the ill-fated outlaws to their masters, the system would have existed to the present. In my time almost any person who could prove that he was in possession of a few acres of land could have one or more convicts assigned. Often these small proprietors were themselves recently liberated felons, not more reputable or trustworthy than some of the persons committed to their care; generally in such cases master and assigned servant lived together in the same gunyah or little hut—a communion not unfrequently terminating in horrible details of murder, perpetrated on or by the ignorant and criminal masters. Nor was it uncommon, as inquiry proved, that persons of great respectability abused their trust; neglecting the moral welfare of those assigned to them, punishing them with undue severity, and providing them with scanty and unwholesome food; while others again, with ill-judged leniency, allowed their convict servants such licence that they became unmanageable, and fell from one step to another, until some glaring atrocity brought them back to gang-labour.

No wonder, then, if such a tree produced bad fruits; and of these not the least evil was the number of bush-rangers it called forth, giving rise to a romantic but very disagreeable state of insecurity to those who pursued their avocations in the distant backwoods of the colony. Once entered on the path of crime, nothing seemed too atrocious for the bushrangers: they lived in a state of continual excitement, endeavouring by inebriating stimulants to banish from their minds the forebodings of evil; wandering from place to place like evil spirits, and afraid of the gaze of their fellow-men, except when the way to plunder was safe and expeditious.

In those days persons who lived in the remote stations, or who had frequent occasion to visit Sydney,

seemed to make up their mind to be plundered occasionally by the 'baling-up' gentry. Arms or numbers served not to protect from these cunning and adventurous vagabonds, who, unexpectedly making their appearance with ready-cocked double-barrelled guns, or other unpleasant-looking weapons, left their victims no choice but to surrender unconditionally. Even to this hour the sound of 'bale up,' when so saluted by an Australian friend, brings with it anything but agreeable feelings, and I always expect to hear the accompanying click of a gun-lock.

Of the many brigands who traversed the country in 1832 and 1833, raising 'black-mail,' none were more daring or notorious than the Bold Donoghue and his band. Songs were written extolling the prowess of himself and his lads; and the morning-chant of the convict servant, as he hied to labour, was often in praise of this gang of villains. The daring, the known sanguinary character of the leader, together with his almost ubiquitous powers, by which he seemed to put time and distance out of the question, caused his name to become a general source of apprehension. Scarcely a week passed over in which some impudent robbery was not recorded against him, and the mounted police sent out on his trail; but while perhaps they were hunting for him at Maitland or Scone, they would receive intelligence of a later crime on Liverpool Plains, or some other more distant locality. Two other run-aways, Webber and Walsley, were usually his accomplices—Underwood, his first associate, having been put out of the way, as will hereafter appear. I was then residing near the Hunter River, and although in the most likely place to receive a visit from Donoghue, had so long escaped that much of the zest of 'pleasing expectation' had subsided, and my family of young cornstalks ceased almost to think of the bold highwayman.

In the summer of 1832, having occasion to visit Sydney for the purpose of balancing accounts with my wool agent—which business was arranged to my satisfaction, for prices were then remunerative—I set forth, intending to take a circuitous route homewards by Paramatta, Wiseman's Ferry, and Mangrove Creek, where some little matters were also to be adjusted. Mounted on an excellent nag, and accompanied by my faithful native servant Buka, I wended my way merrily towards the then flourishing village of Paramatta, the road leading through a beautifully-diversified country, and well frequented with noisy bullock-teams and other signs of progressive improvement, which made the fifteen miles appear but a short ride. Inns are of course just the places to meet with adventures; and had such a taste formed part of my composition, it might perhaps have reconciled me to the annoyances of an Australian country tavern; but the rough, everyday pursuits of a squatter's life had long taken away from me any zest of that sort, and I would gladly have availed myself of the usual hospitality of the respectable country settlers had not business ruled it otherwise. Inn-keeping, or rather pothouse-keeping, has always been one of the most lucrative though most disreputable ways of money-making in New South Wales. Such places are too often there, as in the mother country, the haunts of all the bad and dissipated characters; with this addition, that translation from the mother country, whether as bond or free, has generally altered for the worse the habits of the lower orders; and it would perhaps be impossible to meet with similar scenes of rioting, drunkenness, and swearing in any other colony as are met with in these rural taverns. Moreover here,

as in all newly-risen colonies, there was a freedom of thought and action common to high and low; and in the country-houses of entertainment, the man who had a little money, and sober enough not to 'break glass,' might take his place in the best room with the richest settler, thereby bringing the traveller sometimes into very strange company.

On the present occasion I was not more fortunate than usual. The general reception-room contained a party of eight or ten who were enjoying the 'stone-fences' (brandy and ginger-beer), while the smoke emitted from about the same number of pipes almost obscured the struggling rays of the candle intended for our illumination. Some of the neighbouring squatters present, with whom I had slight acquaintance, soon entered into conversation; and we were afterwards joined by a stranger, who, leaving his own companions, seemed very desirous of introducing himself to our notice, but in such an awkward, half-confident, half-sheepish way, that I felt almost at a glance that he was what is usually styled a 'lag,' or convict on leave. His dress was that of a poor squatter—a cloth shooting-jacket, the worse for wear, and a pair of moleskin nethers, kept up by a leathern belt. The face, as far as could be seen under the broad grass-hat, was pleasing, and indicative of mildness, which his voice also confirmed; but his restless, uncertain manner made me regard him with extreme suspicion. Neither the place nor company was such as to induce me to remain long; and accordingly I retired to my modest sleeping apartment, where I had been for some time trying to accommodate myself to the attacks of the fleas and B flats, those very numerous enemies of mankind in the antipodes, when to my astonishment Master Buka entered very unceremoniously, his manner indicating that he had something of importance to communicate. It may be well to mention that Buka had been taken at an early age from his tribe on Lake Macquarrie, and brought up with much care to eradicate the propensities of the savage; but although personally attached and strictly faithful to my interests, he retained much of the irreclaimable wildness of character which pertains to the race. It was no uncommon thing with him to betake himself to the bush for a season, joining his own or any other tribe which would admit him, whence he would again return to my service. He was, therefore, in the habit of addressing me in his own language, or the patois introduced among them by the settlers. Giving a cautious look round, he whispered in my ear: 'Bale me like that wanagail fellow, piyaller with you to-night—that fellow Webber.' In short, he informed me, very much to my disquiet, that he had recognised Donoghue and Walsley in the darker corner of the parlour, and that the timid gentleman was no other than their companion Webber, who had probably been sent over, on hearing my name, to ascertain my route on the morrow, and which in the conversation had been inadvertently made known to one of the squatters.

My first impulse, on learning that this notorious gang was so near, was to call the landlord and ask assistance to secure them; but Buka told me they were off soon after I retired; that, being well mounted, they were far beyond the possibility of capture; that 'nothing but devil devil could catch them;' and that if we made the attempt, or raised any alarm, their friends in the village would assuredly inform them, thereby entailing the certainty of an early visit at our station. Having passed a restless night, what between the real attacks of fleas and the imaginary ones of robbers, we got on our road at an early hour, taking care not to apprise mine host of our knowledge of the parties who had been entertained in his house the previous night. He might perhaps have not been aware who they were; but at that time most of the country tavern-keepers considered only that these bushrangers were lavish of their easily-acquired gold, and that giving unsuccessful

information was the surest way to bring them to the establishment, not to spend money, but to extort it.

Who that has visited Australia can readily forget the delightful freshness of the morning air, breathing its acacia odours, and reminding him of the blooming heath on mountain or moor in his distant native land? Its mildly-bracing effects put rider and horse in good spirits, and in about two hours we reached the quiet, sequestered hut of an old miser, well known by the sobriquet of Dirty Jemmy, whose gunyah was the usual halting-place of those travelling northward, and where most persons stopped to bait their cattle. On reaching the hut, Buka hailed the inmate; but instead of receiving the usual reply, was accosted with 'Who the devil are you? Stand off—I'll bale up no more for mortal man!' at the same time the tip of a rusty musket was protruded through one of the loopholes with which the tiny edifice was perforated—an attempt at fortification which testified to the insecure nature of the district. With some difficulty old Jemmy was made to understand that ours was a friendly visit, on which he allowed us to enter, while he took charge of the horses. The cause of his exasperation was soon learned. In the middle of the previous night the Bold Donoghue and friends had been on a visit to Jemmy; and although they took no money—possibly on account of the old man having been once a convict—yet, as he said with a sigh, 'they made me cook the best parts of some sheep intended for the day's market at Paramatta, and fed their horses without payment,' which, to old Miser Jemmy, were mortal offences. His account of Donoghue certainly did not afford me any increased feeling of security for the money in my pocket. 'Oh, he's a devilish-looking ruffian, and so's Walsley; but Webber's a quiet chap.' Before settling with Dirty Jemmy, I asked him how he would have acted had money been demanded. He replied: 'Why, all the little I have I'll keep; I've been "baled up" three times—I never gave money. O no; blood they might take, but old poaching Northamptonshire Jemmy never would give up the dust.' He advised me, in conclusion, to take the path to the Maitland side, and not the main road, as he had heard them mention that as being the probable route of some one they expected shortly. From this retired spot all our ride was now through a magnificent forest country, traversed by lines of hills, along the summits of which our path lay, every now and then looking down into immense valleys, in which scarcely anything was visible but rows of towering red gum, blue gum, and swamp oak, while here and there, matted on the rocks, were numerous dendrobias, with their clusters of yellow-white or mottled flowers. With some reluctance Mr Buka informed me under what circumstances he had first become acquainted with Donoghue; and as the general truthfulness of his leading statements was afterwards confirmed by the confession of the bushranger, I may as well put it in a connected form before the reader.

'You remember, bingai (friend), the feud that existed between my tribe and the Wyongali about the capture of a jih or native wife, and I had promised the husband and brother to go with them to avenge the wrong. Well, last year we spent many days on the Wollontai range, for we had been told that some of the Wyongali were abroad in the neighbourhood, and with cautious step we prowled about on our mission. Evening had closed in upon us. Fearing to light a fire, we lay down beside a fallen tree, as is our custom, covering ourselves with the soft, yielding bark of the tulka or tea-tree—for you know that the gatti (dead men) and povrang (the evil spirits) are then flying about, and we dared not move after dusk. In about an hour my companions, Pir-ra-ma (the Wild-duck) and Môt-to (the Black Snake), called my attention to the glimmer of a fire at some distance. "Now," exclaimed the bereaved husband, "the piyaller blood for my jin!"

Slowly and stealthily we crept over the ground, and approached the fire, our spears ready for instant work, as we felt convinced it must be a party of Wyongali. Much to our surprise we saw two white men in a furious contest, one holding the other by the throat. "I have found you out at last, Underwood," yelled this one, who seemed to be the master; "here's your book, villainous traitor, and everything ready to sell me by peaching; but by the blood of myself, Donoghue, I'll square accounts with you this minute. Down on your knees till I settle you!" relinquishing his grasp, and cocking a double-barrelled gun. The victim seemed at once to lose all self-possession, whether overcome by a sense of his discovered perfidy, or of the unrelenting nature of his companion in crime, he fell down in the attitude of prayer. "Let me first pray, Donoghue, for forgiveness of all the dark deeds you led me into. Wont you spare me for old times' sake, Donoghue?" "No, you traitor: five minutes must finish you and your prayers; so make haste." The doomed man went on muttering a prayer, till at last Donoghue fired both barrels, and his victim rolled over dead. The aborigines of New Holland have a superstitious dread of a dead body—nay, even to be near the spot where one is laid—and we also shrunk back into the thick bush. This unusual noise caused Donoghue to start up. "Ah!" he exclaimed, "you police devils, are you come for me? But he deserved it." Then finding no response made, he set up a loud laugh, like a madman—"Ha, ha, ha! Was it only the wallabi" (small kangaroo) "that disturbed the Bold Donoghue?" Slowly we crept away, and at early dawn started off, having had quite enough of looking after the Wyongali. Wild-duck, who had known Underwood to be a companion of Donoghue, went some time after and gave notice to the authorities, who sent out and discovered the remains of the murdered bushranger, which quite corroborated the account of his death; and indeed Donoghue confessed to some of his companions that he had despatched him, and no good had ever followed him afterwards.

Buka had scarcely finished his narrative—which, had I not known the native dislike to refer to scenes of murder or death in any shape, would have made me wonder at his keeping it so much a secret from me—than he suddenly reined his horse up, observing: "Three yanaman (horses) pass out this wood; bale me (I do not) like him." He then dismounted and looked narrowly around, as if to assure himself. 'Yes, 'tis them wanagail dogs—Jemmy piyaller me—that Webber rob one shoe his nicze yanaman, to put on him mummy carbon yanaman.'

He pointed to the ground in proof of what he stated—namely, that one of the horses had a smaller shoe than it ought to have. He might as well have shewn me hieroglyphics, as I could discover nothing but a series of irregular marks on the hard road; yet here the experienced eye of the New Hollander could trace even that slight difference in the indentations. There was now no doubt as to the fact of the daring outlaws having passed along the only path then open to us, and I could not help feeling certain that their object was to waylay me, under an impression that I possibly had more money with me than usual; for had they not had something specific in view, they would probably have turned up by the Windsor Road, where they might expect better game; and, moreover, the only house along our route was Wiseman's, at which they might look for determined opposition.

The enemy was getting on apace, and we were yet seven miles from Wiseman's Ferry, our destination, and under the circumstances I was rather puzzled what to do. To go forward would be to meet the party; our horses were too tired to carry us to Windsor or back to Dirty Jemmy's; and if I hid the money, and met the party, certain death was to be looked for in revenge

for being cheated out of their booty. Master Buka soon came to my aid: 'Ah, bingai, me mill-mill (look after) those dingoes; and giving me his horse to lead, and desiring me the moment I saw him running back, or, if dusk, when he imitated the cry of the little hawk (pipita, pipita), it was a signal of danger, and I was to turn at once into the adjoining thickets.

Probably I had followed on as directed for about an hour, my vision on the rack to discover in the multifarious forms which seemed to hover about in forest twilight, and my ears on the stretch to catch the first indication of alarm, when I heard the little hawk's screech, and in a moment turned into the wood, concealed by long reeds; which I did so hurriedly, that in the imperfect light my head came into violent contact with the remains of a gum-tree, and put me in a train of reasoning on the comparative influence of a waddy or native bludgeon used on the cranium. Buka soon joined me, and commenced rubbing the ears of the horses to keep them quiet, and with much satisfaction I could discern the bushrangers approach and pass on without discovering our whereabouts. Donoghue's rough Irish voice sounded above the others; for I heard him say we could not be far off, but perhaps we had turned up by Maitland way. My faithful servant told me afterwards that he was very close upon them before he was aware of it. They were resting in a bo-i-kon-umba, or fern-covered spot, apparently discussing some plan of operation, but the kea-ra-pai (white cockatoo) gave him notice. 'Yes, bingai, 'twas this mur-ra-mai (pointing to a round crystal he carried in his opossum girdle as a charm) which saved us. Some day me piyaller you how that murry hojerry (very good), that murramai (charm) for budgel (sickness): but murry (make haste), saying which he mounted and set off at a brisk canter, although nothing but the expectation of a return of the brigands would have tempted us to rattle along as we did over a rough, in many places steep road, which lay very often close to the edge of a precipice.

Trusting to my lynx-eyed guide, I was not long in reaching the path leading down to the southern bank of the river Hawkesbury, whose tortuous windings lay mirrored below us in a series of broad bright sheets, on which the moon, just rising, threw her sober light. We took up our night's quarters at Wiseman's. Early on the following morning we were ready for our journey, and leaving the hospitable roof of the old lag—once a convict, but now worth thousands—passed through the gateway, each side of which was (and I believe still is) decorated with the statutory attempts of some exiled Nollekins: an emu marvellously resembling a goose with very long legs, and a kangaroo non-descript-sort-of-animal, as a squatter would express it, between a jungle-dog and a window-shutter. In answer to Buka's coo-wee, the ferry-boat, plied by two convicts, came across for us—the standing order being that whenever a native came to either bank he was to have immediate and free transit. Once landed, we commenced the ascent of the northern bank, one of the most surprising roads in the colony, cut as it is in most places out of the solid rock. The scenery in this locality is some of the finest in New South Wales. In winding up the first range, the lofty dark rocks on the right tower sullenly over the narrow road, which on the left looks down into a series of yawning, precipitous, but well-wooded valleys; while here and there might be caught among the trees a glimpse of the Hawkesbury, winding broadly and brightly down between its mountainous limits, resembling more a chain of lakes than a river. It was truly one of the most delightful pictures of nature's own painting I had ever looked on.

My attention was at length withdrawn from the fair scenery by the conversation of some convicts who were wending up the hill before us. 'Yes, he'll be scragged this morning, and no mistake, for old — is

to sit in the gibergunyah to-day.' 'Halloo!' 'Here they are at it now.' On looking forward, and something to the right, I noticed a few soldiers standing under arms near the road, their faces upturned, as if gazing intently on some object above them. Thither the road led me. The gibergunyah, or rocky hut, as it was then styled, is a natural excavation in the rock, over which a sort of pulpit projected; steps had been cut in the stone leading up to it, and here sat the magistrate to try the delinquent convicts of the immense gang then employed on the road. We arrived just at the moment the unfortunate wretch was about to expiate his offences; for under such circumstances little time elapsed between the sentence and its execution. A few paces below where sat the judge was a little spot cut out of the rock, on which was erected the gallows, and from which, in almost as little time as it requires to narrate it, the finale of the morning's work was evidenced in a yellow and gray striped object which dangled from the little triangle. The few convicts assembled for the purpose of witnessing this sad example were marched to their respective duties under the military escort. Having stopped for a moment to inquire the cause of this execution—repeated robberies with violence—I proceeded on my journey, just hoping and wishing that if the gentry who were yesterday in pursuit of my cash should cross the river, they might never pass the gibergunyah.

As we cantered over the crest of the fine range of the Wollambari, the beauty of the scenery was greatly enhanced by the variety of brilliant flowers which gemmed the road skirts, among which the splendid mountain tulip, rising from its sword-leaved bed to a height of six or eight feet, displayed its enormous crest of dark pink blossom; even the philosophic Buka could not help remarking that the minimal was 'murry burdger.' Nor failed he to criticise some of the equally fair though less pretending orchidaceæ, which hung in many-coloured festoons from the impending rocks. My chief reason for taking this route homewards was to inspect a property I had recently purchased near Mangrove Creek, and I hoped to reach it at an early hour in the afternoon. In this, however, I miscalculated. We had arrived within seven or eight miles of it, when, happening unfortunately to halt for a short time at the hut of shingle-splitters to inquire the nearest way, Master Buka, whose olfactories were of the most critical acuteness, detected the remains of roasted kangaroo. Under pretence of lighting his pipe, he dismounted, and was not long in getting what he termed a belly-tightener. Of this I was not aware until, calling upon him to mount, he returned a sort of low growl not unlike that of a wild beast disturbed in his food. In short, he had crammed himself to repletion, and, like every other New Hollander in a similar case, move he would not without a siesta. Neither threats nor cuffs availed: all I could extort out of him was 'Bale me go—bale me go; or, in plain English, 'I'll not stir.' This had occurred so often before to me that I knew there was no resource but an hour or two of patient waiting; after which I tried my foot on a sensitive part of his person, and thereby prevailed on him to rouse up. The old shingler informed me that four persons had passed the gunyah in the course of the day; but there was nothing by which I could identify any of the bush people. As this detention had somewhat interfered with my prior arrangements, I was unavoidably obliged to choose a less direct and little-known path between Ten Mile Hollow and my destination, instead of the usual route, which was quite unfit for twilight travelling. Master Buka was of course, like other savages, rather out of humour at being disturbed so soon after his meal, and scarcely a word was exchanged until something seemed to rush suddenly across him. His eye brightened up, and after listening for an instant, he exclaimed: 'What come that? That not

black fellow come—that some payal gomerall white; and when assured by me that it was some squatter out in search of his distantly-strayed cattle, his face assumed the stupid inanimate look of his countrymen when just recovering from a feat of gluttony.

A few minutes only elapsed, however, before I was sensible of my mistake. A voice neither loud nor rough saluted me from behind a large springy bark-tree with 'Bale up, or you are a dead man!' In an instant I discovered it was Webber's voice; and the sounds of others rapidly approaching convinced me there was only one hope of escape—to stand and fight, and perhaps disable with my pistols any one of them that might advance. I cocked one of my pistols, and was just on the point of levelling it at or about the situation where Webber was in ambush, when Buka called out: 'Murry, make hast—Murry, make hast!' at the same time whipping his horse, which darted off at full gallop close to the spot where Webber stood. My nag instinctively followed, and so rapidly, that I passed through the smoke of the barrel fired at Buka, which possibly saved me from the effects of the second, sent whistling after me.

I could hear Donoghue apparently swearing at his horse, which might have become restive by the firing. Still I halted not to assure myself of the fact, but let my yanaman take his course, as he played a game of follow my leader—almost as dangerous as the bush-ranger's rifle—through clove trunks, over fallen trees, and down precipitous rocky pathways which would have made a Galway steeple-chaser halt. We reached a point at last where we were obliged to dismount and drive our horses down a series of precipitous rocks, which the poor creatures, as if aware that mischief was behind us, went down, sliding and jumping in a way nothing but a squatter's stock-horse could accomplish.

It was now so dark as to render it unsafe to proceed at the pace we had lately been going; and as we were within two miles of Mangrove Creek, I suggested to my attendant that we might safely take more time, particularly as we were so close to the village, where I could hardly expect the villains to follow us. 'Bale—bale, bingai; I smell poito (fire), mill-mill that!' pointing to a blaze in the bush about half a mile ahead. 'Haha; that dingo Walmesley make that. Donoghue has sent him before us to make poito; but Buka strike-alight (understands) all same ki-ko-i (native cat), hate he catch us dis time.' As soon as the nature of the ground would allow we again mounted, and as the path improved, made as much dispatch as the indifferent, dusky light permitted, and in a few minutes we were close to the fire, which blazed furiously on the right, our proper path. Buka, however, led me down by the edge of a morass, along which we were obliged to advance very cautiously, being a sort of quagmire overrun with water-lilies, excepting at a narrow stripe, in which our horses picked their way with much trepidation.

We had scarcely entered on this, before the smoke to windward came rolling down so densely that I felt my breathing becoming quickened and choked. The *comee* of our assailants, however, at no great distance, roused me, and dismounting, I staggered on a few paces. I fancied I could hear a person swearing, which Buka afterwards told me he believed to have been Walmesley; but the dreadful suffocating sensation soon prevented my being conscious of anything going on around me. My sagacious companion was not long in guessing at my state: he threw himself off his horse, gave it a switch with his stock-whip, and drove it into the bog, then grasping my hand, he called out, 'Murry, make hast—Murry, make hast; bale you mind yanaman; let him go devil, devil!' Letting fall the bridle, I was dragged along what seemed to me to have been miles, but was in reality only about a hundred yards, expecting every instant to drop under the pain-

ful effects of choking and thirst. At length we reached a tolerably clear space, and got past the fire, which I now observed with satisfaction was rapidly spreading towards where we had distanced our pursuers, whom I was uncharitable enough to wish it might overtake.

My poor horse, with the attachment and instinct of some of his race, had followed closely behind us, and thus enabled me to ride into Mangrove; and on the following morning Buka set out to recover the one he had been riding the previous night, but the poor creature was found dead in the bog, and with difficulty even the saddle was recovered. Another yanaman was procured for him, and crossing the Warren-warren Mountains, in two days reached my station on the Hunter River, not a little thankful to have escaped the Bold Donoghue and his friends.

About a week afterwards I received a hurried note from a neighbouring magistrate requesting me to give all the information I could relative to the dress and appearance of these wretches, as a foul murder had just been committed by them on a Mr Clements. It appeared in evidence that this amiable person had set out from Sydney, taking with him a considerable sum of money; he was going to Captain Bingle's station, and had with him two armed attendants—Hickey, a discharged soldier, and another styled Billy the Welshman. The party was crossing the Bulga Road towards the Hunter, little anticipating an attack, as they were so well prepared to defend themselves. Three persons were observed coming towards them with guns in their hands; but being dressed like squatters, and having kangaroo dogs, Mr Clements supposed they were merely sportsmen. Donoghue walked up at the head of his party, and after the usual salutations of the country, asked Mr Clements to give him some tobacco. This he was preparing to do, when the bushranger said to him in a rough, quick way: 'Come, come, mister, what are you humbugging about it so long?' Mr Clements, perceiving at once into what company he had fallen, endeavoured to draw out one of his pistols; unfortunately they were fastened through the trigger-cover to his belt—a matter which had not escaped Donoghue's attention. In this dilemma Mr Clements called on his servants to fire; but the words were scarcely out of his mouth before Donoghue killed him by discharging both barrels of his gun. At the same time, the other bushmen presented their arms against the attendants, who quickly surrendered. Both of them acted with so much want of decent courage that it led to the supposition that they were accessories; but perhaps their pusillanimity was excusable if we remember the characters of the men they had to deal with, and if, as has happened, a whole coachful of armed persons could be 'baled up' by three or four bushrangers, two not very stout hearts might be pardoned for yielding without a shot.

After this outrage became known, a strong force was sent out in various directions, and a reward of £100 was offered for the apprehension of Donoghue. For several weeks the mounted police were in pursuit, but his intimate knowledge of the country enabled him to elude their endeavours for some time. At length, separated from his companions in crime, and wandering up and down the country—the most miserable of Cains—he became less particular about his haunts. Information was given of his being in the neighbourhood of the Bargo-Brush, between Campbelltown and Berrima, on the southern road. A patrol of mounted police came unexpectedly on him, but not before he had first fired and slightly wounded one of them, who, taking a good aim at Donoghue, killed him on the spot.

Walsley and Webber escaped for some little time, but were ultimately hunted down, and suffered that penalty which I had secretly wished for them in passing the gibbergunyah. After that the neighbourhood was tolerably free from bushrangers; but to this day, in

the district of Hunter River, the name of the Bold Donoghue is connected in the squatter's mind with murder and terrorism.

#### POETRY OF THE DAY.

'HARDLY a magazine is now published,' observed Moore to Scott, when talking of the poetry of the day, 'but would once have made a reputation.'—'Ecce!' said Sir Walter, 'we were very lucky to have come before these fellows!' If one were not disarmed by the good-humour of the remark, it might be hinted that both the interlocutors have now subsided into the rank of the minor poets of their own generation, and that therefore the compliment paid to the lesser lights of our day was not very extravagant. There may be plenty of Scotts and Moores among us, but assuredly we do not boast of many Wordsworths and Byrons, or Shelleys and Keats! But nevertheless there is in these last days an astonishing under-current of poetry welling constantly on, and working its way towards the light. The struggle after excellence, however, though brave, is fitful. The difficulty of concentrating the thoughts becomes greater and greater; for although the whole world of mind is astir, its attention is snatched hither and thither by the events and exigencies of a time in which all men are busy from morning till night in hearing or telling some new thing in art, science, or history. If this is not the cause of an interregnum in poetry which threatens to rival in duration the peace, we know not what is; for the age is essentially poetical, and even in its everyday life are seen the embodied forms of what in earlier times were only dreams and prophecies.

We have caught up at random two of the poets of the day, and shall set them to do their spiriting for the delectation of our readers; in some hope of being able to force from them the secret, why they are not great poets, but merely the producers of such works as 'would once have made a reputation.' It is possible that the titles of these volumes may call up only a faint recollection—if any at all—in the mind of some readers, but that is of no consequence. It is a peculiarity of the time that even genius of a high order is frequently stumbled upon in unknown books—for unless the genius has concentration and sustained power, it takes no decisive hold of the palled and jaded mind of the age—and if this should be so in the present case, we are all the more thankful to have the opportunity of drawing attention to real merit.

The first of these books is 'Lelio,'\* in the principal piece of which we see as clearly as is possible (though that is not very clearly) into the character of the poet's mind. His idea seems to be to give a kind of personification of Conscience, or rather of the operations of conscience, such as would have the same effect upon an intending criminal 'as the animated eyeball, as it were, of the Phidian Jupiter, fixed on him, and flashing with divine indignation.' He would 'give a local habitation and a name to our avenging thoughts, and which must be in some sort suited to the nature of the crime.' His pictures are no mere creations of sentiment, but 'the embodiments of an evil conscience, put forward in poetical garb and prominence,' and which he supposes 'to be forced upon the reflective part of man's nature while he is carrying on his schemes of worldly pleasure and aggrandisement.'

This great and difficult attempt commences with a light conversation on love and wine—two kinds of enjoyment which are poetically entwined by one of the speakers; but in the next scene the poem really begins. Lelio is wandering among the Apennines immersed in twilight musings on 'the ways of God to

\* *Lelio, a Vision of Reality; Herror; and Other Poems.* By Patrick Scott. London: Chapman and Hall. 1861.

man,' in the course of which he earnestly longs to behold in real form and presence that mystical power—if we comprehend the author—which operates by means of the conscience:

'Or see before me pass in specular vision  
The distant truths that form the essential sound  
Of which the world's hard life is but an echo?

His meditations appear to have a creative power:—

'—Ha! the time fits these thoughts, and these wild thoughts

Have given formation to the dusky air;  
Or, do I dream, or is the gloom around  
Heap'd into shape, such fitful shape as suits  
Impalpable things! Again 'tis there! I see it  
Deepest amid the deepening shades, and growing  
In fearful life; its features only seem  
Distinctly fashion'd, yet shew less the impress  
Of physical nature than the hot reflection  
Of a sun-like soul; as if creative power,  
Willing to give to mind a visible clothing,  
Materialized a God's intelligence!

This phantom is an Angel, his 'bodied thought,' by whose ministration he is forthwith conveyed to the world of spirits.

'Angel. What seest thou, Lelio?  
Lelio. Nothing!

A. Look again; thine eyes  
Are not yet cleansed from earth. What seest thou?

L. Nothing  
Distinctly, but as 'twere the flickerings  
Of undulating gloom.

A. Once more, what seest thou?  
L. That which might shake a statue! All around  
Dim shapes are looming into light, as flashes  
Of a pale flame, instinct with morbid life,  
Reveal the infernal palace of the dead.  
Some lie as if the sickness of despair  
Had fed upon their strength, and stolen its colour  
From the unhoping eye; on glittering thrones,  
Raised haply by magnificence of crime,  
Are seated kingly and yet drooping forms,  
The burning aristocracy of hell!

All this is explained by a personage called Eidolon; a word which means image generally, and which the poet applies to signify ambition—pleasure—avarice; any of those treacherous cupbearers of the heart which drug the bowl with poison. Eidolon is all in turn, and exhibits the extremes of enjoyment and remorse, giving matter for didactic conversation between the seer and the angel. Unsatisfied, however, with this view of the unveiled passions, Lelio desires to see beyond them—to see power itself in the work of creation. This, too, is accorded.

'Angel. Away then—in thy breast  
I breathe the spirit that will bear thee up  
Unfaintly above the realms of matter.  
Away, on rushing wings that leave behind  
The sunbeam in its flight, and to the regions  
Unvisited by Heaven's extremest star!

What seest thou, Lelio?

Lelio. Let me look again,  
For my sense swims upon a boundless ocean,  
Struggling against its own magnificence.  
I see the flashings of bright points that pierce  
The solid night, whence floats a spinning sound  
Of a low melody—while round me ripples  
Impalpable ether, whose conflicting waves  
Breaking in flame, the evanescent bloom  
Of blackest darkness, shew nought near but thee  
Standing beside me in untenanted space!  
Behold, immeasurable shadow creeping  
O'er the clear void, and from a form that might be  
The form of man, could the weak eye take in  
Its limitless outline, stretches forth a hand,  
Within whose hollow rests a new-born world;

The other arm extends a mantle o'er  
Its naked limbs, and showers all forms of matter  
And fire of mind upon its mighty surface,  
Heaving the pulse of a stupendous life!  
A little while those awful fingers poise  
The trembling globe, then hurl it flashing from them;  
Away, it rushes through the lash'd air, waking  
Time into life, and night to light—away—  
Lifting its voice of giant joy, and shouting  
To the unbounded universe, to welcome  
A radiant brother of God's ancient stars!

The next vision is the typical history of the new-born planet—which may be supposed to be our own—and which, passing through the reign of war and vice, arrives at length in the course of ages at the perfection of virtue and happiness—and then vanishes in space. On this consummation the Angel declares—

'Thus will it be, but on the highest point  
Man is not placed at once, nor nature bidd  
The gradual seed spring instant to a tree.  
Up the slow path he toils enduringly—  
Such is Heaven's law—and gathers strength by  
climbing.

And think not that the buried past hath hid  
Its treasures with it—that the single soul  
Work'd singly, and then died—it cannot die  
In its large life! The spirits of all time  
Are but the swelling waves of one vast ocean.  
The meanest mind that thinks, but forms a part  
Of an eternal whole, the faintest flash  
Flows in to aggregate the living sun  
Of glory, less than God's!

It will be seen from these quotations that there is much lofty and genuine poetry in the volume; but the clue to the philosophy is lost ever and anon, till, before the close of the piece, it is entirely forgotten. We receive the idea that Mr Scott while writing had either no distinct conception at all of his own subject, or that, owing to the want of a power of concentration, it vanished every now and then from his mind. The mixing up with so fine and lofty a strain a commonplace story of human passion is of itself a symptom of weakness; but independently of this, our author makes the vulgar mistake—to which he ought to be superior—of confounding loveliness with beauty. On this subject, however, we have perhaps already said more than enough,\* and shall now therefore only give it as our opinion that if Mr Scott had been able to separate the two ideas, he would have avoided what must strike every reader of judgment as an incongruity, and have so far supplied the wanting clearness in his design. His descriptions of beauty, notwithstanding—of which we add one as a specimen—are certainly among the finest things in a volume of poetry which we look upon as one of the most remarkable of the time, both in power and promise.

'Lelio. Oh! let me not  
Faint ere I fill my gaze! Before me springs  
Expanding visibly the fresh growth of beauty,  
An exhalation of divinity  
Clings to her like an atmosphere, each limb  
Seems moulded by the Deity anew,  
While the blue veins swell proudly, as if crying  
It were a damning shame on him who tried  
To soil that glorious temple! 'Tis a shrine  
Where saints might worship!

Angel. She was form'd from dust.  
Lelio. Dust! ay, a most brilliant dust, of which  
Each atom was a star! I may speak madly,  
But to be madden'd by a cause like this  
O'erweighs a world of reason. I dare tell thee,  
All angel as thou art, thou hast not seen  
In Heaven's own courts a thing more beautiful

\* See 'New Theory of Beauty,' in No. 382.

Than that I gaze on; mind and matter there  
Are so consummately fused by the great Artist  
Into a strange and most divine communion!  
Life were too short to look. I do, I do  
Look on the master-effort of a God,  
The point at which Omnipotence arriv'd,  
And stopp'd when it made Woman! She is gone,  
Moving along in stately beauty, like  
The chariot of a king—And yet not gone;  
Space seems made up of mirrors, multiplying  
Her magic presence, as if viewless spirits  
Cloth'd their immortal essence in the form  
She wore, as next to Heaven's; whose musical lips  
Draw the rich air she breath'd, and then exhale it  
In one enchanting measure—listen!—listen!

We now turn to another poet whose genius presents some curious contrasts with that of the author of 'Lelio.' Calder Campbell, we believe, has never even attempted a long flight, but has continued for many years showering around him, with a prodigal hand, all sorts of lyrics that address themselves to the sentiments and affections. There is no name better known than his in periodical literature; and not a few of his pieces will bear comparison with the best of the kind that have been produced in his own generation. But his range is limited. He is satisfied with the external world which presents itself to his senses, and busies himself with the humanities of life. His muse flies neither high nor far, but her wings are always laden with the perfume of the earth.

We shall select our specimens from the principal poem in the volume before us—of which, however, it fills only seven or eight pages.\*

'The joyous young Loidie!  
She boundeth, in her childlike happiness,  
Where her tame linnets breed  
Among the golden broom, which she no less  
Loveth for its bright radiance and sweet smell,  
Than for its guarding her young linnets well.'

This Loidie is twelve years of age, and is loved and watched over by everybody around her.

'Pass'd is the merry brook,  
Spann'd by her feet, as fairy-feet might do,  
At one light bound! A look  
Upon the blue forget-me-nots she threw  
As on she hied—low-singing a sweet song  
To which the skylark answered loud and long.

Pass'd is the hazel copse—  
Pass'd the gray village church, whose graves call up  
No idle fears: she stops  
To pluck a weed, and place a buttercup  
From and upon a new-made grave—then o'er  
The meadow glides—not singing as before.'

We have italicised these words, but without that they must have struck the reader by their eloquence. On goes the child—

'Pass'd is old nurse's cot—  
Pass'd is the fairy lady's crystal well;  
And so she nears the spot  
Where breed her linnets dear. The fragrant smell  
Of furzes, all aglow, spreads up round her  
An incense, which sets all the bees astir.'

The young birds are flown! They are flashing through the blue heavens, and with their gleeful songs laugh at her tears and her despair! This is the first trial of Loidie.

But she has still her father's and her mother's love, by which she is encompassed like clasping arms; and she proceeds on her path of young life with sunshine on her head and flowers at her feet. One summer morning

—but let her speak her *réveille* herself, for it comes upon the ear with an Elizabethan freshness:—

'Waken, my father, wake!—  
Waken, sweet mother! lie-a-beds too long!  
Come forth for my dear sake,  
And hear the early lark's rejoicing song:  
Waken!—I've flowers for ye—your favourite ones,  
They've had no kisses yet, but mine and the sun's!'

And in the bloss'ning sheaf  
She flingeth at the lattice. No reply  
That gift of bud and leaf  
Welcomes—but one low, pained, wailing sigh  
(That crept out o' the window, like a sound  
Of something weird and wild) made her heart quail  
and bound!

Her parents are dead! This is the second trial of Loidie.

But Loidie is kept up by another love. That, too, is lost in turn; and there lies upon a white stiff breast on the battle-field a lock of her auburn hair!

'She did not wed, she ne'er could love again:  
A widow's holy weed  
Upon her heart she wore; but o'er her pain  
She plac'd no blazon—calling folk to see  
How she lamented her virginity!

By ones, by twos, by threes,  
Sorrows steal on us; trials to be borne  
Not in mad ecstasies—  
Not in hard apathy—not in proud scorn—  
But with our human tears in human eyes,  
And breaking hearts, and all but hopeless sighs!

Her early childhood's birds,  
Her parents, and her faithful lover, these  
Were lost in turn! Sad words  
Are "parting," "death," "the grave;" but Faith  
foresees  
Such things as meetings, where no Death hath room  
To dig a grave, 'mid Life's eternal bloom.

And thus did our Loidie  
Live on, nor sink beneath her TRIALS, staff'd  
By Faith and Hope, whose creed  
Quencheth the fever of the heart, when quaff'd—  
We die, to live and meet! only, upon  
The road of Life, farewells, like thorns, are strewn!

#### THINGS TALKED OF IN LONDON.

August 1851.

By the time these lines appear in print the majority of your readers will have seen the Exhibition, and returned to their homes with a reminiscence of which they will become prouder the longer they live; and not a few will now be able to comprehend the force of the Spanish saying—'See Seville, and die.' What a subject wherewith to delight and instruct the minds of future grandchildren! As day after day passes over, pouring its sixty or seventy thousand visitors into the Palace of Glass, so do the perceptions and experiences of the executive officers become clearer and wider. Differences in taste, skill, and handicraft, before unobserved, become appreciable in the articles exhibited; comparisons can be more fairly instituted; and, as a consequence, we must hope that the judicial awards will be the more conscientiously pronounced. There will of course be complaints, but if justice be done even the dissatisfied may be conciliated.

Such is the sum of one division of our metropolitan talk; another topic, and a notable one, is whether the building shall, in accordance with the terms of the contract, be pulled down after the close of the Exhibition. As yet the 'noes' have it until next May; but unless parliament, or some other equally efficacious power, make the temporary preservation permanent,

\* The Three Trials of Loidie; Sunshine and Shadow; The Phantom Reproof; and other Short Poems. By Calder Campbell. London: William Shoberl. 1851.

we shall lose the means and opportunity of establishing a winter garden—a perennial recreation-ground—scarcely less attractive than the Exhibition itself, and a desideratum much hoped for by all who love to see nature yielding to art for man's behoof, and more especially by those of delicate lungs condemned to wear respirators. After the intimation which has been given, that if the nation wills it the building shall stand, it will be the nation's fault if the building falls. Lieutenant-Colonel Lloyd proposes to purchase the raw materials, models, &c. now exhibited, to create 'a vast and most useful collection of the products and works illustrating the arts and manufactures of the world, which might form the nucleus of a still more extensive museum of practical knowledge and manufactures, the want of which has long been felt in this country.'

The past few weeks have to a considerable extent realised the expectations that were formed as to the influx of visitors. Our crowded streets have been more crowded than ever; and notwithstanding the complaints made in many quarters that business is stagnant, there are many retail-shopkeepers who consider this as their lucky year, and find their cash-boxes grow pléthoric. It is easy to understand that of the thousands who come to London, a large percentage will naturally carry away with them a keepsake, or some sort of tangible evidence of their visit, and thus the phenomenon is accounted for. Apropos of this influx, it forms not the least interesting of metropolitan sights at present, as may be readily proved by watching the coming in of trains at any one of our railway stations, the arrival of from fifteen hundred to two thousand passengers by one train, producing a scene of bustle and bewilderment anything but agreeable to timid travellers, however striking it may be to studious spectators. It is not less an evidence of locomotive facilities than of the attractions of the Exhibition.

Of other matters, I may tell you that the poet-laureate has betaken himself for awhile to Italy; that Mrs Browning has come over to see the Exhibition; and that her noble poem 'Casa Guidi Windows' has been translated into Italian by Mazzini for the edification of his countrymen. Lamartine is busy with a 'History of the Restoration of Monarchy in France,' intended as a sequel to his Girondists; Mr Gladstone's 'History of the Roman State,' translated from the Italian, is an acceptable addition to our knowledge of that apparently exhaustless subject; then we have a 'History of Adult Education,' by the secretary of the Manchester Athenæum; and De la Rive of Geneva is to give us a 'Treatise on Electricity,' with such historical details and elucidations as will add largely to its value; and Liebig is increasing knowledge and his own reputation by a new edition of his 'Familiar Letters.' Thus you will see that all business is not at a standstill. Besides these, there is a work published at Lyons on the 'Metaphysics of Art,' in which the author takes a logical view, and says: 'The best endeavour in the interest of art is not to study it in itself and abstractedly, but to appreciate it in a single point of view, in its general relation to nature, and the actions and destiny of man.' And next, a poem in six cantos by a noble viscount on a singular subject—'Abd-el-Kader;' and Mr Babbage's 'Exposition of 1851,' a book much talked about. It discusses, among other questions connected with the Exhibition, the vexed one of prices; and in not affixing these to the goods displayed the author contends that the commissioners made a grievous mistake. Unfortunately the utility of his work is neutralised by the personal matters which he has mixed up with it. A prize essay, too, on the Exhibition has made its appearance; and the author of 'Ten Thousand a Year' has found in the Crystal Palace material for a romance, of whose merits readers will shortly have an opportunity of judging. These are but a few among the works waiting for purchasers. Could you see the number

and variety of 'Guides,' 'Handbooks,' 'What to See, and How to See,' &c. &c. &c., you would hardly wonder at the advance in the price of paper. Truly there is no end to the making of many books.

Signs of what is called 'progress' are apparent in the formation of a committee with a view 'to establish a uniform rate of postage throughout the world,' comprising natives as well as foreigners; the latter to undertake the task of bringing the subject before their respective governments, and of inducing them, if possible, to assent to the proposed arrangement. The proposal to make penny receipt stamps universal is still talked about, with more or less of favour, as well as the newly-announced 'Plan for Registration-Offices for Needlewomen,' 'the intention of which,' according to the prospectus, 'is to improve their (the needlewomen's) condition, and prevent their pauperism by securing to them the profits of their own work. The plan promises the consumer a superior article for his money; and to enable men, without any previous knowledge of the trade, to procure their garments as easily, and with as much economy, as experienced females can do. It also proposes to afford every facility to families in finding suitable needlewomen, either to work by the day or by the piece, and securing them against loss by damaged work or non-fitting garments.' The promoters of this measure—who, by the way, might advantageously bestow a little pains on the syntax of their manifesto—consider that if set agoing by subscriptions during the first year, it would afterwards prove self-supporting. If they can accomplish what they propose, many a

—'sempstress lean, and weary, and wan,  
With only the ghosts of garments on,'

will thank them for their benevolent endeavours.

We are soon to hear what took place during the eclipse along the line of its totality, from some of the observers who went abroad for the purpose of watching the phenomenon. And apropos of astronomy: government has been asked to establish a large reflector in some part of our Australian colonies, as the atmosphere there is much more favourable for observation than our own. The askers will have to wait a little longer. A similar request for a reflector on the Neilgherry Hills has been made to the East India Company by Mr Jacob, the astronomer at Madras—and refused: that gentleman, therefore, has set to work upon a twenty-foot reflector, which, should he meet with no assistance, he will finish at his own cost.

The programme or prize-list issued by the Dutch Society of Sciences at Haarlem has excited some attention: they have awarded a gold medal to Dr Cramer of Groningen for his able paper on the question—'What certain knowledge has been gained by the researches of naturalists on cryptogamous plants, which infect the organs of living animals, and especially of man? In what relation is their development with that of unhealthy products, and will their natural history, when well understood, lead to a rational medication?' Among the questions proposed, to be answered before 1854, is one—On the presence of arsenic in mineral springs: On the chemical combinations of metals: Whether negative Artesian wells might not serve for the drainage of lakes and marshes if sunk in an absorbent soil: On the change of colour in birds according to the change of season: Which is the actual organ in the eye that accommodates vision to distances: As cinchona forests disappear so rapidly in consequence of the gathering of bark that there is cause to fear a failure of the supply, is there any reason to hope, from what is known of the natural history of this tree, that its culture might be successfully undertaken in the Dutch colonies? Whether the sails of windmills, which have scarcely undergone a change during the last two centuries, are susceptible of improvement: Whether electricity has any share in the

**Daguerreotype process:** On the effects of electric clouds on telegraph wires, and the means of prevention: On the physical properties of water as touching its colour, propagation of sound through its mass, &c.: Are sponges animal or vegetable?—how are they produced and multiplied? On the nature of clouds and fogs, and what is the force which holds their component globules separate? And last, the Society call for further information concerning the dodo; and suggest that, besides the fragments now existing of this extinct bird, others may yet be met with if sought for with intelligence. These are only a sample selected from a voluminous list embracing a wide range of scientific subjects, the bare enumeration of which would serve to shew that the Society is not disposed to be inactive or incurious on points which have for some time baffled philosophical investigation. The prize medals are valued at 150 forins, and in certain cases the same amount is granted in money additionally. Competitors may choose their language, and write, as best suits them, in Dutch, French, English, Latin, Italian, or German. With such a scope we shall surely get something worth the reading.

Have you heard that Boutigny's theory of the spheroidal condition of water has been in part adopted as an explanation of the cause of volcanic action? It is a point on which both chemists and geologists may exercise their wits. The latter may also cogitate on the statement put forth by M. Nilson, in a work on the ethnology of Sweden, that at Fjellbacka, in 58 degrees 35 minutes north latitude, there is a rock which was two feet below the surface of the water in 1532; seven to eight inches above in 1662; two feet above in 1742, and four feet above in 1844—making a rise of six feet in three hundred years. Besides this, which is, as you know, a debatable subject, M. Ed. Collomb says, on another question open to discussion, that the appearance of ancient glaciers took place at a period less remote than is commonly supposed. He considers that 'glaciers and floating ice did not exist on our globe at the palaeozoic, jurassic, or cretaceous periods, as no traces of the action of solid water have been met with in the strata of these periods. This action commenced at the close of the tertiary period, and very probably but a short time before the appearance of man.' Such glaciers as are at present in existence he regards as 'relics of a great phenomenon, whose greatest intensity corresponds to the period of the dispersion and establishment of man on the earth.'

Give me leave here to interpolate a few miscellaneous items, as there is more geology to follow. An important one is, that there are now 22,000 miles of electric telegraph in the United States: the Danish government have authorised the construction of a submarine telegraph to connect Copenhagen with some of the provinces; two Englishmen have obtained a charter for the work. An act has just received the royal assent which provides for the improvement of common lodging-houses. These establishments are to be registered, to be visited whenever the inspector may think fit, and cleansed should he so decide; and the proprietors are to give notice in the proper quarter whenever fever or contagious disease breaks out among the inmates. A commendable enactment this. From the published returns, it appears that 26,813 persons were committed for trial in 1850, being 1003 fewer than in 1849. Of these 2578 were transported, 17,602 imprisoned, and 49 executed, leaving some thousands still unaccounted for.

There has been some talk about an account of a recent exploration of the Mammoth Cave of Kentucky, by Professor Silliman, junior, who, in company with one of Dr Mantell's sons, visited that remarkable locality. There is sufficient interest in the details to warrant my introducing them here by way of conclusion. After stating that a barometric measurement of the cave shews it to be 325 feet below the adjoining level, Mr Silliman

observes: 'One atmospheric phenomenon attracted our attention, and tasked our ingenuity for a satisfactory explanation. If the external air has a temperature above 60 degrees Fahrenheit, the observer, on approaching the mouth of the cave, is met by a blast of cool air blowing outward from the mouth; and if the external temperature is high—say 90 degrees Fahrenheit—the blast amounts to a gale. . . . In hot weather this contrast of temperature and its accompanying blast of air are at first quite overpowering, and you feel as if immersed in a cold bath.'

'If the air without has a temperature of 59–60 degrees, no current is observed, and the flame of a lamp held in a favourable position indicates none.' Mr Silliman ascertained that there were not two currents flowing in reverse directions, as at the entrance of a room; and from observations made by the guide during a considerable period, he was satisfied 'that only one current existed, and that this flowed out when the external air was above 60 degrees, and inward when this was below 60 degrees. Going in one day at noon, we found the outward blast very strong: we prolonged our stay until past midnight; meanwhile a storm of rain, accompanied by lightning, had come up, and at three A.M., when we again emerged, the temperature outside had fallen to 50 degrees, and the inward gale blew so strongly as to extinguish our lights several hundred yards from the mouth. In fact the guide told us, when more than two miles in the cave, that a change had taken place in the outer air, and that we should probably find a storm raging without. His accustomed senses detected the gentle current inward which we did not notice at so great a distance; and he perceived, as he afterwards told us, a change of level in the subterranean rivers since our crossing them in the morning, the rain, which had fallen copiously, having already affected them.'

The explanation offered for this phenomenon is, that as the galleries and avenues of the cave extend for many miles in different directions through the solid limestone, there is always a vast collection of air, having no other outlet than the one chief entrance. The prodigious extent of the branching galleries may be inferred from the fact, that the blast at times continues in one direction, either outwards or inwards, for several weeks together, and occasionally months.

Of living things within the cave, the explorers found 'a sort of cricket with enormously long antennæ'; 'several species of coleoptera, mostly burrowing in the nitre earth'; certain water insects, and some varieties of fish—the latter all blind, notwithstanding they have eyes. Bats hang to the roof by millions; and besides these the only mammal is a rat, covered with fur bluish in colour, with a white breast, and 'possessed of dark black eyes of the size of a rabbit's eye, and entirely without iris; the feelers also are uncommonly long. We have satisfied ourselves that he is entirely blind when first caught, although his eyes are so large and lustrous. By keeping them, however, in captivity and diffuse light, they gradually appeared to attain some power of vision.'

Mr Silliman is of opinion that the excavation, or rather denudation of the Mammoth Cave, is due to the action of running water, which by some convulsion was suddenly drained off to a lower level. His views will help to set geologists speculating; and until confirmation comes, we must admit that his statements possess considerable interest, particularly as regards 'an entirely new feature.' While traversing the galleries, he says, the sound of falling water is occasionally heard; and 'approaching cautiously to the spot from which the sound proceeds, we find usually a deep pit often surmounted by a dome. These pits are of various depths, but mostly not less than one hundred feet, and cut down with walls of limestone so entirely vertical, that in many cases we were able to measure them from the

edge with a line and plummet.' These pits or domes are in some instances 200 or 300 feet deep or high. At one point of Gorin's Dome, the most remarkable, 'the outer diameter of the circle bounding it comes so close to one of the adjacent galleries, that the thin shell of interposed rock has been removed for a space two feet square, through which, as through a window, the observer may put his head, and obtain an imperfect glimpse of the interior. You perceive that the loop-hole through which you look is midway between the ceiling and the first gallery below; and by a powerful illumination a tolerable view is obtained of this monolithic structure, built without hands. I was provided with the means of producing the Drummond light; and with the guide, my assistant, and Mr Mantell, we succeeded in making the perilous descent, where only by groping in the dark over profound chasms could we find a foothold to a point some hundred feet below the opening above described. Here we erected the Drummond light, and by its aid obtained the first view of the lofty ceiling. The dome is of an irregular outline, in the main ovoidal; and from the ceiling hangs a great curtain of sculptured and vertically-grooved rock, unsupported below, with the graceful outline and apparent lightness of actual drapery. A small stream of water falls from the top, which is broken into spray long before it reaches the bottom, and keeps the whole interior wet with its splashing. No gallery has been found which leads to the bottom of this most beautiful dome. We found other similar domes in which the pendent curtain just described had fallen, and portions of it but little removed from their original position seemed poised to a second fall.'

Mr Silliman hints further at 'mysterious rivers, with their many-tongued echoes; the mounds of mud and drift which they annually heap up; the long miles of avenues which stretch away beyond them, rugged or smooth; and of the vaulted ceilings, crystal grottos, and gypsum coronets, which tempt the mineralogist to untiring exploration.'

#### THE INNES TRAGEDY.

Among the family papers belonging to the Duke of Roxburgh, there is a manuscript history of the House of Innes of Innes, from which his Grace is descended. It was printed in 1820, but its circulation is limited to the small class who occupy themselves in genealogical inquiries. Among other matters of family history, the volume contains the following series of incidents, all connected with each other in a manner to justify the title we have given to the narrative. We may observe, that we have seen these events narrated already by an English genealogist, but without that reference to the Scottish habits and manners, or that adherence to the tone of the original which are, we think, necessary to fully comprehending their tenor and character.

To understand the motives of the actors in this tragedy, it must be kept in view that the family of Innes had possessions both in the Highlands and the Lowlands. The former carried with them the important right of chiefship, held by the head of the family. The estates of Lowland proprietors at that time—the sixteenth century—followed the regular line of hereditary succession; but it was otherwise with the Highland chiefs. They were a kind of patriarchs chosen by the clan, and it did not always follow that the next heir in the hereditary sense was selected. It often happened when the son of the deceased chief was a youth that his brother succeeded him. The law, it is true, was against any such practice; but the civil courts were not strong enough in the Highlands to suppress it. The matter was more complicated, however, when, as in the case of the Innes family, the same man became both Highland chief and Lowland laird. The next heir in the feudal sense was the indubitable

possessor of the Lowland estates; and this gave him so much influence in the Highlands, that it would be difficult if not vain for any other member of the family to stand against him for the chiefship. It happened that a cadet of the family of Innes had acquired an estate for himself called Cromy. It was always the desire of such families to accumulate whatever property might be dispersed among the branches, in the possession of the head of the house; indeed a cadet nearly related to the owner of a great estate had more influence and a higher position than in the absolute possession of a small estate in his own person. It was desirable that the Innes and the Cromy property should thus both belong to one owner, and a 'mutual bond of tailie' or entail was entered into by the two relations, to the effect that if either died without a son, the whole property should go to the other. As the Laird of Innes was childless, Cromy assumed the dignity of being his representative and the virtual head of the house.

It happened that a Laird of Innes several generations earlier, called 'Ill Sir Robert,' or Wicked Sir Robert, the brother of 'the Red Tod,' had three sons—the eldest, 'James with the beard,' the second, Walter, called 'Wyllie Watt,' the third, Robert of Drynie. The descendants of Wyllie Watt acquired the considerable estates of Innermarkie and Balveny. The representative of the branch had married into the powerful House of Atholl, and though not so nearly related to the existing Innes of Innes as Cromy was, he formed the design of getting himself made head of the house. In the words of the chronicler: 'The House of Innermarkie, about this time, having attained to the possession of a considerable estate, had for that reason thought themselves the next in respect to their cheif; and finding the family of Innes like to be childless, Robert of Innermarkie grudged exceedingly that Cromy, who was inferior to him in estate, should be advanced so far before him, as he behoved to be by such a succession.'

The matter was laid before a sort of parliament or jury of the House of Innes, who decided that their head 'Laird John,' as he was called, did rightly in arranging that the heir-at-law Cromy should be his successor. Cromy himself, who appears to have been a chivalrous, gallant fellow, offered to leave the matter to single combat—to lay the entail 'on the grass,' and see if Innermarkie 'durst take it up.' But open warfare was not Innermarkie's nature. He set about secretly poisoning the ear of Laird John against his representative, shewing how he assumed all the pomp and circumstance of Laird of Innes, leaving their real owner 'no better than a masterless dogg.' Laird John, who seems to have been a weak man, yielded to these insinuations, and was brought to the point that 'he would have given anything to have that undone which was done.' Then came out the dark design of the treacherous kinsman. 'Innermarkie having once thus possessed him, told him that it was impossible he could recover what he was cheated out of any other way but by killing of Cromy, who certainly would never part with what he had gotten but with his life. And if he pleased to concur with him, he would be the doer of the thing himself, be the hazard what it lyk'd—he would undertake it rather than see his cheif made a slave as he was.'

The design of the murder took full possession of Innermarkie's mind, and he carefully watched all the motions of his victim, that he might fall on him apart from the usual attendant followers who generally then accompanied a northern cheif. In April 1580, Cromy's son, who was at college in Aberdeen, fell ill, and his father went to visit him. Innermarkie, ascertaining where he lived, collected a band of his followers, and stealthily entered the town. At that time every considerable town in Scotland was a sort of battle-field, where the neighbouring families fought out their feuds.

In the country each kept to his own territory and his own castle; but when they repaired to the town on business or pleasure, they must needs come in contact with each other, and they could not do so without bloodshed. The confusions thus occasioned gave ample opportunities for such crimes as Innermarkie desired to perpetrate. There was at that time a feud between the Gordons and the Forbesees. Cromy was a partisan of the former; and as the courtyard of the house where he lived had been carelessly left open, his enemy knew that he had nothing to do but to raise the Gordon rallying-cry within the court. Accordingly Cromy, hearing shouts of 'Help—help! a Gordon—a Gordon!' ran down half dressed to a postern opening to the court. He had no sooner opened it than Innermarkie, who was prepared with his matchlock, shot him, and the followers rushing on him, despatched him with their dirks.

The old Laird of Innes had accompanied Innermarkie on his murderous expedition, probably in the belief that his intention went no farther in the meantime than coercion. At all events, he seems not to have been prepared for so tragic a scene. Innermarkie swore, however, that he should be as deep in it as any of them; and taking one of the dirks which had stuck in the body of the murdered man, he held it to the old man's throat, and threatened to plunge it into him if he did not strike the body with his dagger. 'and so,' says the chronicler, 'compelled him to draw his dagger, and stab it up to the hilt in the body of his nearest relation, and the bravest that bore his name. After his example, all who were there behoved to do the like, that all might be alike guilty. Yea, in prosecution of this, it has been told me, that Mr John Innes, afterwards Coxtoun, being a youth then at school, was raised out of his bed, and compelled by Innermarkie to stab a dagger into the dead body, that the more might be under the same condemnation.'

The next object of the murderers was to despatch the sick youth, Cromy's son and representative. They had, however, lost time with the dagger scene, and by the connivance of some neighbours he had escaped by a secret passage—'the Lord in his providence,' says the chronicler, 'preserving him for the executing of vengeance for these murderers for the blood of his father.'

The next object was to get hold of the entail, which was of course safe in Cromy's own fortealice. They took the dead man's signet-ring, and having got over one of his followers to their side, sent him with it on one of Cromy's horses, to desire the lady of Cromy to send the charter-chest instantly with the bearer, as it was so urgently needed that her husband had not time to send a written order for it—a tedious operation sometimes to a Highland laird. 'Though it troubled the woman much,' says the chronicler, 'to receive so blind a message, yet her husband's ring, his own servant, and his horse, prevailed so with her, together with the man's importunity to be gone, that she delivered to him what he sought, and let him go.'

It happened that there was present a young relation of the family, called Alexander Innes, of Cotta, a companion and friend of the lady's sick son. He was exceedingly anxious to pay a visit to his friend, and believing this to be a good opportunity, desired the man to give him a seat on his horse. The man refused with a sternness and determination inconsistent with the habits of one in his position, and the youth becoming exasperated, the man, in his attempts to explain and apologise, fell into a series of inconsistencies and contradictions, which made young Alexander resolve to accompany him at all hazards. Accordingly, he waited at a spot at a small distance from the door where the man required to ride past, and in the darkness leaped on behind him. The man drew his dirk, but Alexander snatched it from him, and in his fury buried it in his bosom. He returned to the house with the charter-chest, and had scarcely set it down when a messenger

from Aberdeen told of the tragedy that had been perpetrated.

The lady immediately fled to Edinburgh with the precious documents in her possession, and sought the protection of her kinsman, Lord Elphinstone, the high treasurer. But Innermarkie had his friends, who rallied round him, and in the name of the old laird he kept for some time possession of the estates of Innes. He had no difficulty in getting the chief to execute various documents in his own favour, but nothing could obviate the fact, that Cromy's son was not only the next heir, but was in possession of previous documents which could not be recalled. The young man in the meantime made favour with the lord treasurer, and married his daughter. This put the preponderance decidedly in his favour. He obtained a sentence of outlawry against his father's murderer, and was authorised to proceed northward with letters of fire and sword against him—a sort of general commission to hunt an outlaw—and kill or take him, breaking through all impediments. 'As to Innermarkie,' says the chronicler, 'he was forced for awhile to take to the hills, and when he wearied of that, he had a retreat of difficult access within the house of Edinglassie, where he slept in little enough security; for in September 1584 his house was surprised by Laird Robert, and that retiring-place of his first entered by Alexander Innes, afterwards of Cotta, the same who some years before had killed the servant who came from Innermarkie with the false token for the writs, and who all his life was called Craig-in-Perrill (throat in peril) for venturing upon Innermarkie, then desperate.' The murderer was despatched at once, like a wolf found in his hole. His head was cut off, and taken as an acceptable present to the widow of the victim. She in her turn, properly appreciating its value, sent it to Edinburgh, to be laid at the feet of the king—'a thing too masculine,' says the chronicler, 'to be commended in a woman.'

#### CURIOUS ZOOPHYTE.

Sir John Graham Dalyell, Bart. of Binns (under whose ancestor, in the time of Charles II., originated the celebrated cavalry regiment of Scots Greys), has lately devoted two elaborate and profusely, as well as delicately illustrated quarto volumes, to the rare and remarkable animals of Scotland, being chiefly the zoophytes, some of them fresh-water specimens, but the major part derived from the Firth of Forth—as, for example, the simple *tubularia*, or 'oaten-pipe coralline' (*Tubularia indivisa*), an animal product, resembling a flourishing vegetable, dwelling at the depth of thirty or forty feet from the surface of the sea, with a living head resembling a fine scarlet blossom, and often pendent, cluster-like grapes, and having the ornamental aspect of a strict resemblance to a bouquet of vivid flowers from the hand of nature. These creatures, by the way, are generally found on shells, entire or decayed, empty or tenanted. A brilliant group was on one occasion seen on a shell carried along by the crawling inhabitant.—*Puffin's Summer Life on Land and Water.*

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